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ABSTRACT

A study applied an associative coding model to discern how emotions experienced during television commercials affect the strength and content of viewer memory for the commercials. Subjects, 25 males and 49 females enrolled at a large midwestern university, tested the model. Emotion was indexed by having viewers continuously turn a dial as they watched four categories of emotional messages: neutral, positive, negative, and poignant. Memory was indexed by the probability of recall and the content of the recall protocols. Following recall, subjects indicated how much they liked the commercials. Results showed that emotional commercials were more likely to be recalled and generated more retrieval of executional information, descriptive words, and inferences than neutral commercials. Emotional commercials were also liked better. Only in repetitions of product category and in generating product characteristics did neutral commercials out-perform emotional ones. Results suggest that a model of episodic memory detailed enough to include emotional events will yield a better picture of how people process television messages. Advertising messages can thus be more accurately designed to meet goals formulated in a marketing plan. (DF)

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The Role of Emotion in Memory for Television Commercials

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Abstract

This paper applies an Associative Coding Model to the question of how emotions experienced during television commercials affect the strength and content of viewer memory for the commercials. To test the model, emotion was indexed by having viewers continuously turn a dial as they watched four categories of emotional messages: neutral, positive, negative, and poignant. Memory was indexed by the probability of recall and the content of the recall protocols. Following recall, subjects were asked how much they liked the commercials. The results showed that emotional commercials were more likely to be recalled, and that they generated more retrieval of executional information, descriptive words, and inferences than neutral commercials. Emotional commercials were also better liked. Only in repetitions of product category and generating product characteristics did neutral commercials out-perform emotional ones. The results are discussed in terms of the methodological utility of the dial-turning operationalization of emotion, implications for the applicability of the model, and consideration of how emotional commercials may be affecting consumers.

The Role of Emotion in Memory for Television Commercials

A few nights of watching prime time television should suffice to demonstrate the importance to advertisers of using messages that elicit emotional reactions in viewers. Soft drink, coffee, telephone, and greeting card companies show vignettes of grandfathers arriving from the Old Country, mothers crying over far-away children, and other heart-rending moments in people's lives. Interspersed among these poignant vehicles are happy, up-beat treatments of products ("I'm a Pepper, you're a Pepper"), as well as the occasional negative commercial, graphically demonstrating the dangers of underinsured homes, rust and corrosion, sunburned skin, and rampant insects.

While the frequency of emotional commercials provides a practical argument for examining them, the theoretical value of exploring how emotion experienced during an advertising message affects viewers' responses is also significant. Advertising researchers (Preston & Bowen, 1971; Mitchell, 1983; Ray & Batra, 1983; Stout & Leckenby, 1984; Kreshel, 1984) have begun exploring how emotion in advertising should be defined, as well as what effects it may have. Because so much of advertising evaluation revolves around effects on memory (Wells, 1982), many of the research questions have focused on the relation between emotional messages and memory. Indeed, it is generally accepted in advertising circles that while emotional commercials may have significant effects at the cash register, they are not well remembered (Berger, 1981; Zielske, 1982). Both for theoretical and practical reasons, therefore, the relation of message-evoked emotional response and memory for the messages is a concern that warrants a closer look.

This paper first examines some definitions of emotion and discusses their utility for understanding message processing and memory. It next reviews the

notion of associational structure in memory, and applies an Associative Coding Model of memory to integrate the variables presumed important for recall of commercials. Finally, five hypotheses are derived and tested in an experimental setting. Implications of the results are discussed both in terms of the evaluation of the model, and in terms of understanding of emotion's effects on memory for televised messages.

Defining of Emotion in Messages

The recent literature on emotion in commercial messages has typically used one of five operational definitions of emotion.

The first and most common approach (e.g., Preston, 1968; McEwen & Leavitt, 1976; Lautman & Percy, 1984; Puto & Wells, 1984) has described emotional commercials as ones that do not emphasize factual attributes of the products, but instead either create a mood or image or in some other way entertain the viewer. Under this approach, an "emotional" commercial is treated as the opposite of a rational one, which emphasizes facts about the product. The problem with this operationalization, of course, is that product information and emotional executions are not mutually exclusive.

A second definitional approach characterizes emotion as being present in the product or topic category itself. A message about child abuse or drunk driving would be operationalized as emotional, while a message about house paint or toothpaste would not. Again, however, the topic of a commercial and how it is treated in a commercial execution are not linked by logical necessity. A message on respecting the handicapped may be made completely without affect, while greeting cards are virtually always treated in emotional executions.

A third operationalization of emotion in messages was introduced by Srull (1983). He manipulated the mood of viewers prior to viewing and showed that doing so affected both memory and judgment. However, the affective context

defined as mood has not typically been treated as synomonous with emotion. Simon (1982) distinguishes emotion from mood by defining emotion as strong feelings that may redirect attention and produce arousal. Therefore, while mood is an interesting phonomenon, it is not synonymous with emotion.

A fourth operationalization of emotion is "attitude toward the ad" (A_{ad}). This measure involves asking viewers to evaluate their attitude toward commercials after viewing (Mitchell & Olson, 1981; McKenzie & Lutz, 1982; Moore & Hutchinson, 1983). While this is an intriguing variable, it also is not the same as emotional experience during viewing, but instead is a cognitive evaluation that viewers make after viewing. While some people may like a message that puts them on a 30-second emotional roller coaster ride, others having identical feelings during the message, may dislike the experience. In either case, the experience of emotion is different from an evaluation of the experience.

A fifth approach (Stout & Leckenby, 1984) operationalizes emotion in terms of three categories of statements people make about commercials. Emotional statements include those that indicate the viewer is energized or aroused, has experienced pleasant/unpleasant feelings, and/or has anticipated feelings about expected consequences. This approach takes the important step of locating emotion in the response of the consumer. However, the measures again have the disadvantage of occurring after the message is over, allowing other factors to potentially confound or contaminate the data.

While each of the operational definitions noted above has proved useful, the present approach turned to the psychological treatment of emotion for a theoretical framework. In a review of this literature, Mandler (1975) indicated there is general agreement that emotion is a process (occuring over time) that involves concomitant changes in the physiological system, and subjective experience. He suggested, however, that the subjective experience component is

critical for the identification of an emotion. These feelings have three attributes: valence, intensity, and duration (Young, 1969). Duration refers to the time period over which the feelings are experienced. Valence is typically represented by a continuum with approach (positive) at one pole, withdrawal (negative) at the other, and indifference or neutrality in the center (Arnold, 1960). Intensity represents the level of arousal with which the experienced feelings occur (Russell, 1980).

To develop an operationalization consistent with these dimensions, the present approach adopted a continuous dial-turning procedure. During viewing, subjects turned a dial up from a neutral point when they felt positive feelings, and down when they felt negative feelings. The stronger their feelings, the farther they were to turn the dial. While there is a lag between feeling and registration of feeling on the dial, the method seemed a reasonable one for providing information about valence and intensity in the flow of subjectively experienced emotion during a 30-second commercial.

The simple differentiation of commercials as positive, negative, and neutral also seemed consistent with psychological approaches. In addition, however, intuition suggested a fourth possibility, namely the experience of both positive and negative emotions, as when one experiences a lump in the throat at the sight of a happy scene. Therefore, four categories of emotion were included in this first study: positive, negative, neutral, and a category labeled poignant, the combination of positive and negative emotions.

Having examined the concept of emotion and its measurement, the paper next turns to its second major concern--memory.

An Associative Model of Memory

One of the central figures of modern association theory of memory, William Estes (1975) explains that association theory assumes that experiences are

represented in memory as units that become linked. Reactivation of one unit leads to reactivation of the others with which it originally occurred. There are many kinds of association models, but the kind adopted here is the Associative Coding Model (Estes, 1975; Melton & Martin, 1972; Johnson, 1972).

Prior to describing how associative coding works, however, the following additional assumptions are proposed as the basis for applying associative coding to memory for commercials.

First, it is assumed that as commercials and the responses they evoke occur, the experiences are initially processed as episodes (Tulving, 1972; Thorson & Friestad, 1984). These episodes are stored as episodic memory traces. Secondly, an individual's emotional responses to these events or experiences are an important part of the information available to be processed and stored in memory. A third assumption follows from the above statements: memory traces containing information about an individual's emotional response will differ in content and strength from memory traces that do not contain emotional response information.

Finally, it is proposed that semantic processing (e.g., comparing, evaluating, categorizing) of information in an episodic memory trace may, or <u>may not</u>, occur at the point of initial encoding. The implication of this assumption is that if semantic processing occurs at some later point, the strength and richness of the episodic memory trace will influence that semantic processing. A model of the interaction of episodic and semantic memory processing of television commercials can be found in Thorson and Friestad (1984), and Friestad and Thorson (1985).

With these assumptions articulated, the role of associative coding in creation of the episodic traces can now be developed. Associative coding works in the following ways. Both incoming stimulation and traces of previous stimu-

lation take the form of a multidimensional vector that stores information about an event (E) and the background context in which it occurs (X). Episodic memory trace vectors ($T_{X,E}$) then serve as control elements for linking new inputs with past experience. For example, if a brand name (event = B) is experienced while a viewer is being made to feel happy (background = H), the trace vector $T_{H,B}$ will be laid down in memory. If this is the only experience with the brand name, the brand will be more likely to be recognized if the happiness context is reinstated or cued than if that component of the vector is missing.

A second aspect of the model is that one trace can serve as a component of another. For example if $T_{H,B}$ is laid down and then a product characteristic (P) is experienced, a second trace ($T_{H,B/P}$) is also laid down. This means that each component (H,B, or P) can reactivate the whole experience, though the strongest activation always results from the most perfect vector match (H,B/P). While very simple, this system provides a basis for highly organized systems of episodic memory traces, and is easily applicable to the processing of advertising messages.

When an individual watches a television commercial, some obvious memory trace components may be laid down. They include: product category (PC), brand name (B), product characteristics (CH), and executional information (EX). All of these occurrences would be experienced fairly consistently among viewers. For a neutral commercial, these elements would be the main trace components. The resultant trace for the commercial, while in reality extremely complicated; can be represented as the vector: $C_{PC,B,CH,EX}$. If, however, the commercial creates an emotional response in the viewer, then the resultant trace is enriched by at least two additional components; the valence of the emotion (V), and its intensity (I). This addition has at least two effects. First, it strengthens the other traces on the vector (McGeoch & Irion, 1952; Brown &

Kulik, 1977), and second, it provides two additional cues for possible use during later retrieval of the commercial trace (Thorson & Friestad, 1984).

If the information available at recall does not perfectly match an existing trace, then the individual vector components can be used to retrieve the memory trace. The element that is "cued" operates as a control element. If the viewer is asked for cake mix commercials, the product category component is likely to be the control element. If the viewer is asked for Pillsbury cake mix ads, both the product category and the brand elements would serve as control elements.

However, if no cues are provided, then some aspect of the structure of the viewed commercials will determine the retrieval strategy. If four executions were presented for cake mix, four for toothpaste, and four for automobiles, then product category might well lead from trace to trace, the product category components of the trace serving as control elements. If the executions were all similar, the EX components might assume control element status. But if emotional content were the only obvious source of similarity, then the trace components V and I, if present, would become the main control elements.

The present experiment created a situation in which consumers viewed a set of commercials and public service announcements that were categorized on the basis of the emotional responses that they evoked. It was therefore expected that the emotional response components of the episodic memory trace for each message would be the best predictors of both recall probability and the content of memory traces. Further, it was expected that these emotional response components could also influence the semantic memory process of evaluating (Aad) each message. These expectations led to five specific hypotheses:

H1: Emotional commercials will be more likely to be recalled than neutral commercials unaccompanied by emotion.

H2: Emotional and neutral commercials will generate differences in the

content of the memory trace.

H3: Strong emotional commercials will be recalled earlier in the retrieval process than those accompanied by weak emotion or no emotion.

H4: The emotional response experienced during a commercial is likely to serve as an organizer of recall.

H5: Emotional commercials will be evaluated more positively than commercials accompanied by weak or no emotion.

Research Design

The hypotheses suggested a design in which subjects were exposed to messages evoking different types of emotional response: neutral, positive, negative, and poignant. A within-subject design was chosen to minimize the effects of individual differences in responses to the messages.

The exploratory nature of the study suggested the use of multiple dependent measures. It was also thought important to include manipulation checks on two variables. The first was the mood of the subjects both prior to and following exposure to messages. If results were to be attributed to emotions created by the commercials, it was necessary to ensure that the effect was independent of how subjects were generally feeling. Mood was tested using the Mood Adjective Checklist developed by Nowliss (1965).

The second manipulation check was an over-time measure of emotional experience during the commercials. Here, the dial measure was used to verify the differential response patterns to the four message types, as well as to serve as a quantitative index of emotional response for use in testing the hypotheses about emotional intensity.

Method

Subjects

Sixty-nine students (25 males) enrolled at a large midwestern university received course credit for their participation. Three subjects were eliminated from the analysis because they misunderstood the instructions or failed to complete one or more of the measurement instruments.

It should be noted that because the research questions are concerned with general memory and emotional processes, rather than purchase intentions and buying, they were unlikely to be affected by use of a college sample. In fact, most of the relevant memory research has used student samples (e.g., Bower and Cohen, 1982).

Message Selection

The study used twenty 30-second professionally produced promotional messages including both commercials and public service announcements. To select the sample, more than 300 messages were previewed. The criteria for "emotional" messages were: 1) portrayal of scenes, events, or situations traditionally associated with strong emotions, (e.g., holidays, family reunions, births or deaths); 2) an emphasis on displays of emotion by the individuals in the message (Weinberg & Konert, 1984); 3) use of production techniques such as soft focus and slow motion; and 4) the use of language referring directly to emotions or physical experience, or use of intense and vivid language (Taylor & Wood, 1983).

Using the general criteria to discriminate emotional commercials, five messages from each of four emotional categories were chosen. Neutral commercials were straight-forward, non-emotional presentations with an emphasis on factual information; Positive commercials were those capable of eliciting feelings of happiness or contentment; Negative commercials included fear messages or portrayal of anger or disgust; and finally, Poignant commercials were

ones that elicited both positive and negative feelings. An example of a poignant ad would be a description of a young girl who is expressing her excitement about growing up. Suddenly a voice-over announces that "Janie has died--the victim of a lonely man driving drunk out of his mind."

The twenty commercials, none of which had been aired in the testing region, represented a wide range of products or topics, including food, soft drinks, shelf products, handicapped people, and an automobile. The sample also represented a heterogenous set of production techniques and styles. Some presentations had slow-paced formats, while others were fast-paced and lively. Some messages used a vignette format, while others had no on-camera characters. The various production techniques were distributed throughout the stimulus set so that no one message type contained a single style of production or presentation.

Manipulation Checks

Subjects used the Tell-Back Interact System-Mark IV, consisting of hand-held potentiometers leading to an analog/digital converter and then to a computer that recorded mean dial readings for every videotape frame. The dials were numbered from 0 to 100, and subjects were told they could turn the dial as often as their feelings changed while watching the commercials. Specifically, the instructions were to dial up from a neutral of 50 toward 100 when they felt positive feelings; down from 50 to 0 when they felt negative feelings. The more intensity they felt, the farther they were to turn the dial. Subjects were instructed to return the dial to 50 (neutral) following each commercial.

The Mood Adjective Checklist (MACL, Nowliss, 1965) consisted of 27 adjectives that formed nine dimensions: aggression, anxiety, surgency, elation, concentration, fatigue, social affection, sadness, and skepticism. Subjects rated the extent to which each adjective described their feeings "...at this moment."

Dependent Measures

Memory. A first set of dependent variables indexed memory in as unstructured a way as possible. Subjects were asked after viewing the commercial to write down as much as they could about each commercial they remembered.

The resulting free recall protocols were used to obtain the following specific memory indices: (1) the likelihood of recall for each message type; (2) the sequence or order in which the commercials were recalled; and (3) the recall content of each commercial, including product category, brand name, product characteristics, quotes, executional elements in the message (i.e., what happened), the number of descriptor adjectives, and the number of inferences.

Liking. The second dependent variable, A_{ad}, was measured with a seven-point scale on which subjects indicated their liking for each of the messages. This is an operationalization that has been used by a number of other researchers (MacKenzie & Lutz, 1982; Moore & Hutchinson, 1983, and Mitchell & Olson, 1981).

Procedure

The subjects participated in small groups ranging in size from two to seven. They were instructed that the study was about the feelings people might experience while watching messages on television. They were then given the first administration of the Mood Adjective Checklist (MACL). This test took approximately two minutes.

Next the subjects were instructed on the dial-turning procedure and given an opportunity to practice turning the dials in response to a message. They held the dials in whatever position was comfortable for them. They next viewed the 20 commercials in one of three random orders. During the 5-6 seconds of black screen between each message, subjects returned their dials to the neutral position in preparation for the next message.

After viewing the commercials, the subjects were administered the MACL for the second time. They were given an unexpected free recall test in which they

were asked to write down as much as possible about each message they could remember. They were given 25 minutes to recall.

The final measurement was a one-page list of the messages and an accompanying seven-point scale for rating how much the subjects liked each message. The entire protocol took approximately an hour and a half.

Results

Subjective Mood State

The two main purposes of using the Mood Adjective Checklist were to determine: 1) whether viewing the messages influenced subsequent mood, and 2) to determine whether subjects' prior mood influenced the dependent measures of interest.

The individual items of the MACL combine into nine factors (Nowliss, 1965). T-tests comparing the pre-and post-viewing MACL scores on each of the nine factors showed no significant differences. It was reasonable, therefore, to assume that the viewing process did not change the subjects' mood.

To control for the effects of previous mood state on memory for the commercials, the first administration of the MACL was then correlated with recall of the four message types. The strongest positive relationship was the social affection factor (kindly, affectionate, and warm-hearted) with recall of poignant message ($r = .28$, $p < .05$). The concentration factor (concentrating, engaged in thought, intent) was correlated ($r = .21$, $p < .05$) with recall of neutral messages. The only negative effects of subject mood were found for positive messages, with skepticism (skeptical, dubious, suspicious) correlated ($r = -.19$, $p < .05$) with recall; and for negative messages where the concentration and elation (elated, overjoyed, pleased) factors were both correlated (both were $r = -.21$, $p < .05$) with recall. Overall, however, the lack of strong patterned relations

indicted that it was unnecessary to include prior mood in subsequent analyses.

Tell-Back Measures of Emotion

The Tell-Back measures were used to determine whether there were significant effects of the three orders of presentation, and to verify that the subjects responded consistently with the *a priori* categorization of the messages.

Although the Tell-Back system recorded subjects' dial settings for each videotape frame, coders recorded the scores at two-second intervals, resulting in 15 observations for each message. Because from one to three subjects were recorded on the Tell-Back channels, the observations were weighted by group size. To determine if order of presentation influenced the emotional response of the subjects, a one-way analysis of variance was used to test for differences among the three orders of presentation. With N=69, alpha at .05 and a medium effect (.25), the power of this test is .95. No systematic differences in the patterns or direction of emotional response were found, although there were seven cases of differences in the magnitude of response. All subsequent analyses were based on the Tell-Back data collapsed across order of presentation.

Next, an ANOVA using mean Tell-Back scores calculated for each message and for each message type was performed, yielding a significant effect for message type (F (3,12) = 8.37, $p < .05$). Follow-up comparisons showed that the mean for Negatives (42.84) was significantly lower than for Neutrals (47.48), which was significantly lower than for the Positives (60.00). While the mean for the Poignants (60.32) was significantly different from both the Negatives and the Neutrals, it was not different from the Positives. This outcome, however, seemed likely to have resulted from the mixture of positive and negative emotions exhibited by the Poignants. To circumvent this measurement problem, the range of Tell-Back scores for each of the commercial types was examined.

The mean range of each of the four message types were: Neutrals, 16.56; Positives, 20.51; Negatives, 23.88; and Poignants, 24.52. An ANOVA based upon thirty-

one Tell-Back groups (weighted by group size), yielded a significant F (3,90) = 16.63, $p < .05$). Pairwise comparisons showed that the neutral range was significantly smaller than the other three.

In addition to showing significant mean and range differences, the over-time Tell-Back response patterns also verified that viewers were differentially experiencing emotion as a function of commercial type. Figure 1 presents an example of each of the four messges types. The patterning for the Neutrals was generally flat, and usually slightly above or slightly below 50. The Positives showed a generally steeper slope upward. The Negatives showed a steeper slope downward. The Poignants split into two patterns. One was a monotonic upward slope, similar to the Positive depicted in Figure 1. The other pattern, shown in the last panel of Figure 1, was an upward slope and then a sudden drop. The over-time patterning, then, also indicated differential viewer experience as a function of commercial type.

Insert Figure 1 about here

With verification of the commercial categorizations by the Tell-Back data, the main hypotheses can be tested.

Likelihood of Recall

Hypothesis 1 suggested that emotional messages would be recalled by a larger percent of subjects than would neutral messages. A one-way analysis of variance (ANOVA) with repeated measures supported the hypothesis ($F(3,204)=6.29$, $p < .05$). However a Tukey HSD post hoc test showed that the significant F resulted from the Poignants being most likely to be recalled (probability = .67) but no significant differences among the other three categories (Positive = .58;

Negative = .56; and Neutral = .55).

Recall Content

Hypothesis 2 suggested that emotional commercials would generate variation in the content of memory traces, and hence analysis of recall protocols would show significantly different elements for the four message types. Seven categories of recall content are shown in Table 1. As can be seen, all one-way ANOVAs were significant. Tukey HSD post hoc tests showed partial support for Hypothesis 2. For recall of quotes, executional information, and inferences, Poignants were strongest. For descriptors, Negatives were strongest and

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Insert Table 1 about here

Poignants were second. At variance with Hypothesis 2, however, Neutrals were strongest in recall of product category and product characteristics. Poignants and Neutrals had the highest level of brand recall. In evaluating these results, it should be noted that the Neutrals may have contained more product-related information than did the emotional messages.

Recall Sequence

Hypothesis 3 suggested that emotional messages would be remembered before neutral messages. This hypothesis was tested by coding the order in which the messages occurred in each subject's free recall protocols. The mean of the modal positions in the recall protocols was the basis for comparison. Poignant commercials were recalled first, (mean position = 2.2), Negatives second (mean position = 4.6), and Positive and Neutrals did not differ significantly from each other (mean positions were 5.8 and 5.4 respectively).

Organization of Recall

Hypothesis 4 suggested that the emotions experienced during commercials could serve as organizers of recall. Poignant and negative commercials were recalled earlier and had more intense emotional responses (as measured by Tell-Back range) than positive and neutral commercials. If, therefore, the former are labeled "strong," and the latter, "weak," a measure of clustering within the groups can be indexed by plotting the expected and observed proportions of each type recalled in each numerical position. Figure 2 shows such a plot for the first three positions of recall. It should be noted that after one commercial of a category is recalled, subsequent probabilities of recalling that category necessarily decrease. As can be seen in Figure 2, the observed probability of recalling a string of two strong categories is much higher ($p = .70$)

Insert Figure 2 about here

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than would be expected by chance ($p = .47$). The patterning of strong-to-strong is consistent throughout Figure 1, and offers substantial support for Hypothesis 4. A test for differences at the first three positions in the order of recall yielded the following chi-square values.

Position 1: $\underline{X}^2$ (df=1) = 3.39 ($\underline{p}<.07$).

Position 2: $\underline{X}^2$ (df=3) = 8.86 ($\underline{p}<.05$).

Position 3: $\underline{X}^2$ (df=7) = 18.92 ($\underline{p}<.01$).

Liking

Hypothesis 5 stated that evaluation of the messages would differ based on a commercial type. An ANOVA for repeated measures yielded a main effect for commercial type [$\underline{F}(3,213) = 62.60$, $\underline{p} < .05$]. Follow-up tests showed that Poignant

messages were liked best, followed by Positive, Negative, and Neutral messages. All of the Liking ratings were significantly different.

Discussion

This study showed that commercially produced 30-second messages can elicit a variety of emotional responses in viewers. The commercials and PSA's used here varied in overall valence, intensity, and patterning across the 30 seconds. The predictions of the Associative Coding Model were generally supported. Because of their elaborated episodic memory trace, emotional messages were more likely to be recalled than neutral messages. Poignant commercials, which showed the greatest intensity of Tell-Back responding, also exhibited the richest recall content. Both Poignants and Negatives were recalled earlier in subjects' protocols than were the Positives and Neutrals, and there was strong evidence for the clustering of Poignants and Negatives in the overall sequence of messages recalled. Further, there was some evidence that evaluation (A_{ad}) of the different message types was influenced by the subjects' emotional responses.

These results indicate that emotion experienced during a commercial is stored on the memory trace for that event or episode. Whether the presence of emotion serves to increase the amount of detail stored on the trace, or whether it simply makes retrieval of the items on the trace more likely, cannot be determined from the present study. Teasing apart storage from retrieval processes could be accomplished by varying the kinds of cues present during recall. If providing product category cues eliminated the comparative richness of the emotional recall, then the process is clearly one of retrieval. If not, then it is more likely that encoding is also affected by the presence of emotion.

There are also two methodological contributions that this study makes. The first of these is the use of the Tell-Back technique for measuring emotional

response in television viewers. The method of asking viewers for a ongoing self-report of feelings moves the experimenter closer to the actual occurrence of the emotional experience. In addition, the use of the mean, range, and patterning of Tell-Back responses allowed for more detailed assessment of complex emotional responses to commercial structures.

The second contribution is the expanded operational definition of memory. Except for the literature on cognitive response (e.g., Brock & Shavitt, 1983), the typical advertising measure of memory has been the percent of viewers recalling a commercial. More detailed analysis of the content of recall has been largely ignored. When content is not more extensively considered, the following two recall protocols are counted as equivalent:

> "Trash bags. Three ordinary bags can fit into two (Brand Name) bags." (from a Neutral commercial)

> "(Brand Name). This was my favorite commercial. The father coming to America on the boat. The reunion with his son. Seeing the son mouth the word 'Papa'. The commercial gave me tingling sensation, my eyes watered. Then I found myself smiling at the end." (from a Poignant commercial)

The richer conception of memory used in this study allows for a more thorough analysis of the kinds of differences exhibited in these two protocols.

As with all studies, there are shortcomings and changes that should be made in further research. Most of these changes would permit more precise determination of the variance accounted for by the variables of interest.

First, it would be helpful to use the Tell-Back system as a mechanism for classifying a number of different messages prior to their use as stimuli. Although the a priori categorization of the twenty messages used here was almost entirely corroborated, there were some messages that did not result in the exact emotional response patterns expected. For example, one Poignant commercial produced a neutral Tell-Back pattern. If the Tell-Back responses alone were used to categorize messages as emotional or neutral, then the effects on memory would undoubtedly be stronger than those found here.

Second, more extensive use of the Tell-Back measure would help to sort out the question of valence and intensity. It appeared from this study that it is as important to examine intensity of emotional response as to look at valence. For example, Poignant and Negative messages were more alike when analyzing data from processes that subjects may not be consciously aware of (e.g., the order in which messages were recalled). However, when the subjects made a conscious evaluation of the commercials (A_{ad}), the Positive messages were closer to the Poignant messages. The implication is that intensity of response may have a greater impact on unconscious processes, while valence may be more influential for conscious thought processes. Future research should separate high and low intensity in valence groups so that the two variables could be examined separately.

Finally, there is a need to analyze the script components of messages so as to more precisely compare elements of the memory trace with the stimulus input. This is important because emotional and neutral messages vary in the type and amount of information they present. This means that whether or not emotion is present, there will be variation in the strength of the items in the memory traces. Determining the specific effects of the presence of emotion depends upon having partialed out the effects of these prior trace differences. For example, in the present study, the Neutrals produced strong memory for product characteristics. If these commercials had, however, an average of six claims per advertised product, while the emotional commercials had only two such claims per product; and if instead of indexing recall as the absolute amount of information generated, it were indexed as a proportion of amount recalled out of amount available, the Neutrals would yield a .70 proportion, while the Poignants would yield a .99 proportion. In other words, treating recall as the proportion of information recalled from information available might be a fairer way to

handle the problem of initial informational differences in the commercial categories. Either this approach, or one in which messages were somehow manipulated to have equal informational content is important for future research.

In general, the present study suggests that a model of episodic memory detailed enough to include emotional events will yield a better picture of how people process television messages. For advertising, this result means that messages could be more suitably designed to meet goals formulated in a marketing plan. For the advertising researcher, it means progress toward understanding how those complex 30-second stimulus arrays called commercials interact with human processing systems.

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Table 1

MEAN OCCURRENCE OF
MEMORY TRACE ELEMENTS
IN
FREE RECALL PROTOCOLS

Element	Commercial Type			
	Neutral	Positive	Negative	Poignant
BRAND The number of times the brand name occured.	.67[b]	.34[b]	.23[b]	.69[b]
PRODUCT CATEGORY The number of times the product category (e.g. car) was mentioned	2.15[c]	1.76[c]	1.08[b]	1.01[b]
PRODUCT CLAIMS The number of different characteristics mentioned about the product, which had appeared in the commercial.	.98[c]	.32[a]	.40[a]	.31[a]
QUOTES The number of verbatim quotations from the commercial.	.09[a]	.10[a]	.02[a]	.20[c]
EXECUTION The number of events, characters and/or settings recalled from the commercial.	3.32[c]	4.28[c]	4.81[b]	5.01[b]
DESCRIPTORS The number of vivid or superlative terms used to describe the commercial. [Words of phrases occuring in the script were not coded]	.10[c]	.37[b]	1.20[c]	.49[b]
INFERENCES Information added by the viewer which was not explicitly portrayed in the commercial. (e.g. "He was his only son") Judgments made about the internal state of the characters (e.g. "The little girl felt scared.")	.34[a]	.23[a]	.45[a]	1.20[c]

n=56; $p \leq .05$; [a] significantly different from one other group; [b] significantly different from two other groups; [c] significantly different from three other groups.

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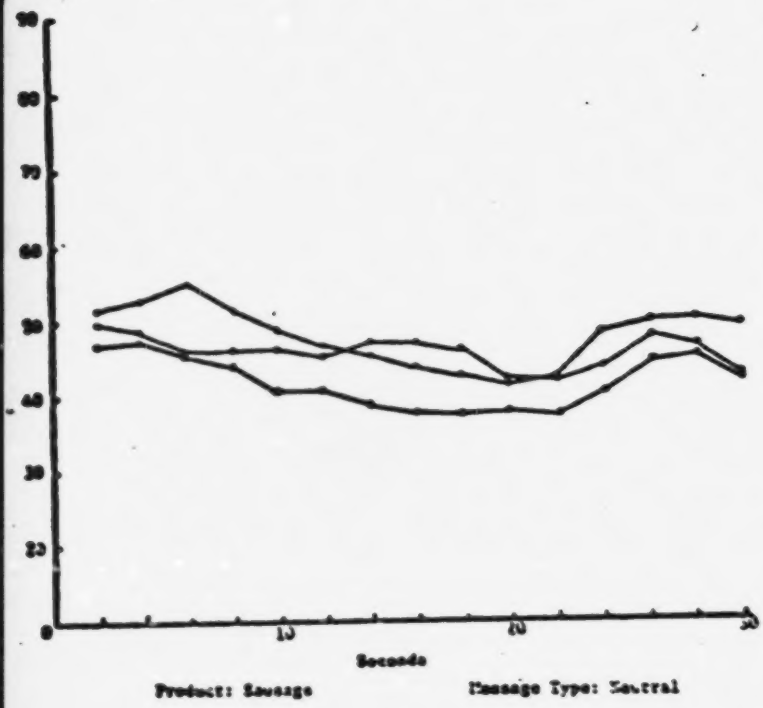
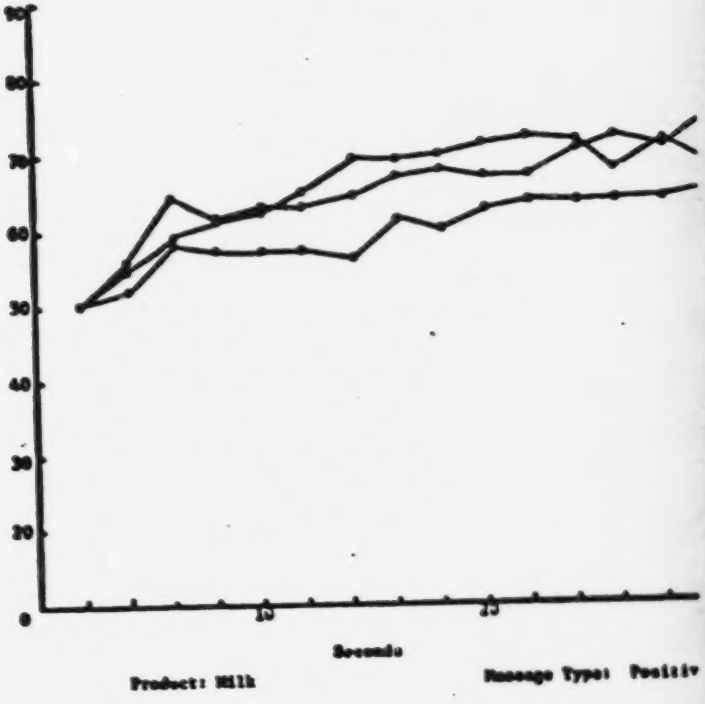
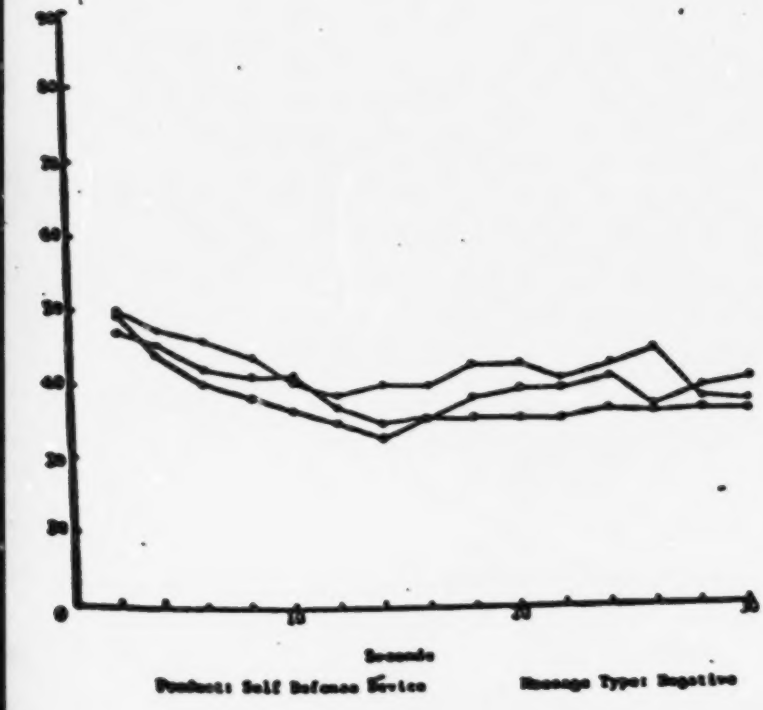
Figure 1

Examples of Mean Tell-Back Patterns

For Each Message Type







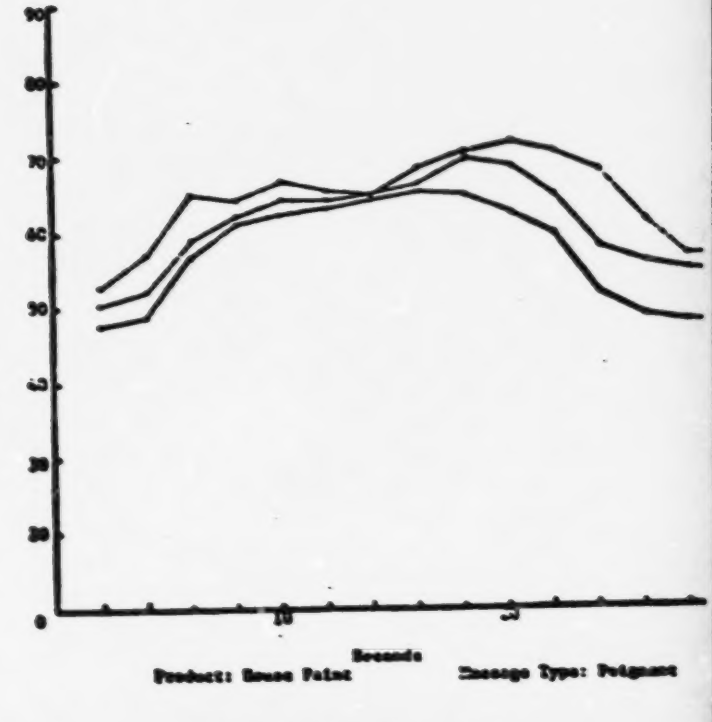


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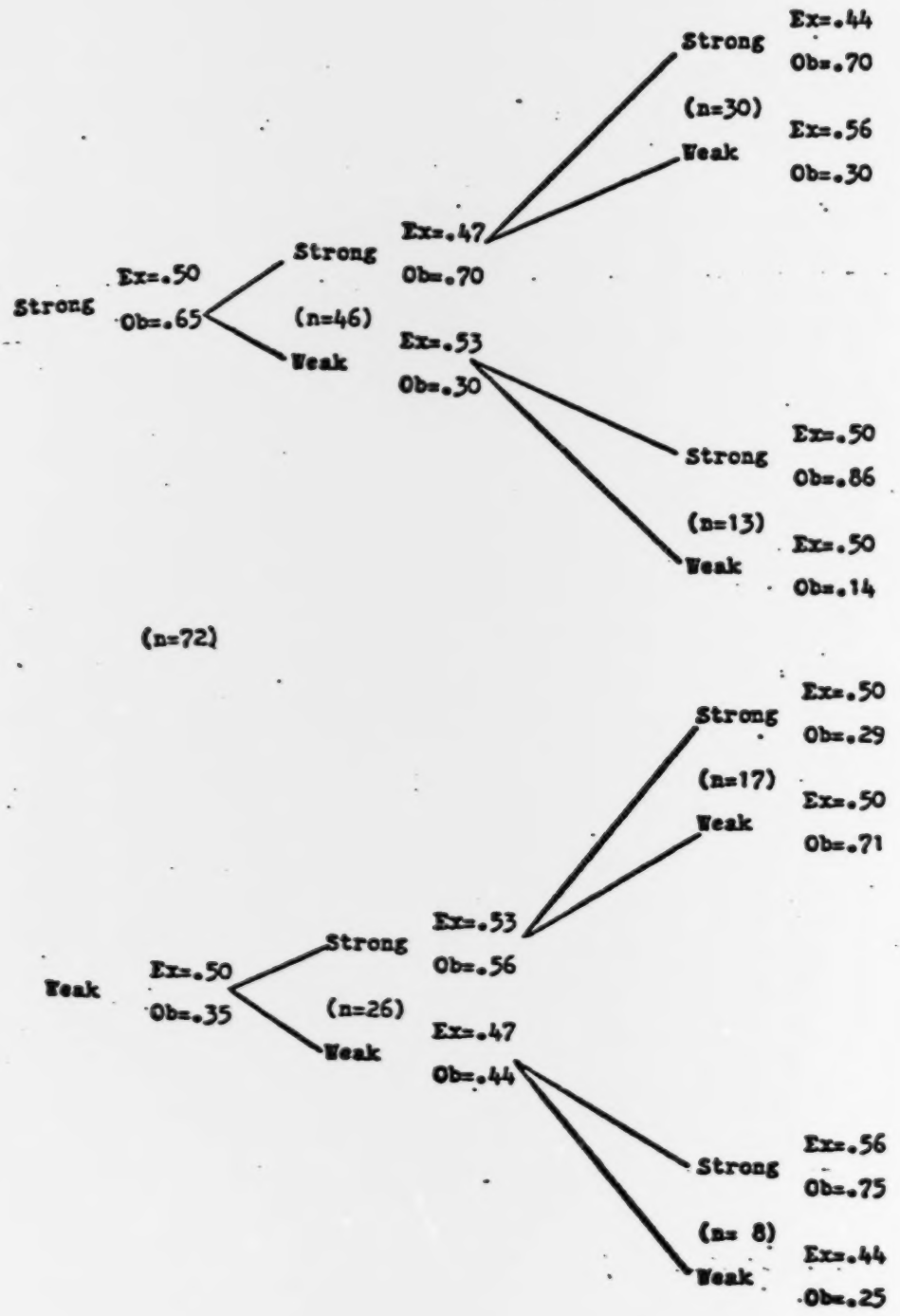
Figure 2

EXPECTED AND OBSERVED PROPORTIONS OF STRONG* AND WEAK* — MESSAGE TYPES FOR THE FIRST THREE RECALL POSITIONS



*Strong: Negative and Poignant Messages
*Weak : Neutral and Positive Messages

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